

AS ISO 9248:2021  
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STANDARDS  
Australia



# **Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies**



AS ISO 9248:2021

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- Australian Industry Group
- Better Regulation Division — SafeWork NSW
- Construction and Mining Equipment Industry Group
- Department of Natural Resources, Mines and Energy, Qld
- Department of Regional NSW
- Engineers Australia
- Institute of Instrumentation, Control and Automation Australia
- Minerals Council of Australia
- Mining Electrical and Mining Mechanical Engineering Society
- University of Queensland

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## Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to specify basic units, symbols and tolerances for the measurements of general machine dimensions, performance and capacities of earth-moving machinery as defined in ISO 6165. It does not cover methods and instrumentation to be used.

This document is identical with, and has been reproduced from, ISO 9248:1992, *Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies*.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9248 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Sub-Committee SC 1, *Test methods relating to machine performance*.



# Australian Standard®

## Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies

### 1 Scope

This International Standard specifies basic units, symbols and tolerances for the measurements of general machine dimensions, performance and capacities of earth-moving machinery as defined in ISO 6165.

It does not cover methods and instrumentation to be used.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid international Standards.

ISO 6165:1987, *Earth-moving machinery — Basic types — Vocabulary*.

### 3 Units

Basic and derived units for earth-moving machinery shall be as specified in [table 1](#).

### 4 Accuracy

The accuracy of measurements shall be within the tolerances specified in [table 1](#).

### 5 Rounding off

The rounding off of measurement results shall be done by adding or subtracting numerical values compatible with the specified tolerance.

**Table 1 — Measurement accuracy**

Quantity	Unit	Symbol	Tolerance <sup>1)</sup>
<b>Basic units</b>			
Linear dimension	metre	m	± 0,5 %
Mass	kilogram	kg	± 2 %
Time	second	s	± 1 %
Celsius temperature	degree Celsius	°C	$\left\{ \begin{array}{l} \leq 200\text{ °C: } \pm 1\text{ °C} \\ > 200\text{ °C: } \pm 2\text{ %} \end{array} \right.$
Angle	radian	rad	± 0,02 rad
Frequency	hertz	Hz	± 1 %
<b>Derived units</b>			
Area	square metre	m <sup>2</sup>	± 2 %
Volume	cubic metre	m <sup>3</sup>	± 3 %
	litre <sup>2)</sup>	l, L	
Force	newton	N	± 1 %
Pressure	pascal	Pa	± 2 %
Power	watt	W	± 2 %
Angular velocity	radian per second	rad/s	± 2 %
Speed	metre per second	m/s	± 2 %
Acceleration	metre per second squared	m/s <sup>2</sup>	± 2 %
Torque	newton metre	N·m	± 2 %
Energy	joule	J	± 2 %
Volumetric rate	cubic metre per second	m <sup>3</sup> /s	± 2 %
Sound pressure level	decibel (ref. 20 µPa )	dB	± 1 dB
<p>1) These tolerances also apply to other units used for the same quantity.</p> <p>Tolerances for specific quantities not covered in this International Standard, on a larger or a smaller scale, or for precision measurements, shall be specified in the individual International Standards which require them.</p> <p>2) 1 l = 1 dm<sup>3</sup></p>			

NOTE Basic and derived units and symbols in [table 1](#) have been taken from ISO 1000:1981, *SI units and recommendations for the use of their multiples and of certain other units*.



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GPO Box 476 Sydney NSW 2001  
Phone (02) 9237 6000  
[mail@standards.org.au](mailto:mail@standards.org.au)  
[www.standards.org.au](http://www.standards.org.au)